

USAWC STRATEGY RESEARCH PROJECT

THE USAF CAPABILITIES BASED CONOPS CONSTRUCT

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## ABSTRACT

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The Air Force has laid the foundation for the next step in its transformation to a capabilities focused Air and Space Expeditionary Force (ASEF). The ASEF employs its warfighting capabilities to create battlespace effects desired by the Combatant Commander. These capabilities are the driver behind everything the Air Force does. The centerpiece of this effort is the development of new CONOPS that will guide its planning, programming, requirements reform and acquisition. The Air Force has identified six CONOPS to describe how it will go to war and conduct operations in support of Combatant Commanders. The methodology used to do this is the Integrated Capabilities Risk Review Assessment. This paper will discuss the adequacy of the CONOPS to identify and assess Air Force capabilities used in capabilities-based planning.



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## THE USAF CAPABILITIES BASED CONOPS CONSTRUCT

### INTRODUCTION

During the last decade, world events have forever changed and shaped the global strategic environment. These events have significant impact on how Americans will wage war in the 21<sup>st</sup> Century. From the dissolution of the Former Soviet Union, to the recent terrorist attacks on the United States (US) on September 11, 2001, these major events demand a fresh look at how the Department of Defense (DOD) and the United States military will invest, plan and conduct future business of the military. Newly emerging threats will challenge our historical way of thinking and acting. The leadership of the DoD recognizes the need for change and is aggressively pursuing transformation for all the services in how they think and invest in the future.

The Secretary of Defense (SECDEF), Honorable Donald H. Rumsfeld, in his Secretary's Foreword to the Joint Operations Concepts document implicitly directs the US military to prepare and address these new threats to our freedom or face a future filled with uncertainty.

We do not know the true face of our next adversary or the exact method of engagement. The threat may come from terrorists, but it could come in the form of ... This uncertainty requires us to move away from past threat-based view of the world and force development. WE must change. We must envision and invest in the future today so we can defend our homeland and our freedoms tomorrow.

The future demands we move towards a capabilities-based approach as articulated in the 2001 Quadrennial Defense Review. This approach focuses more on how the United States can defeat a broad array of capabilities that any adversary may employ rather than who the adversaries are and where they may threaten joint forces or US interest. The joint force will have attributes to make it fully integrated expeditionary in nature, networked, decentralized, adaptable, able to achieve decision superiority, and lethal.”<sup>1</sup>

—Secretary of Defense Donald H. Rumsfeld

The obligation and demand for change is made clear by the SECDEF. It becomes the responsibility of all DoD agencies and their leadership to institute change that will secure the vision of the SECDEF and to a greater extent, US Defense Strategy. The United States Air Force (USAF) is taking a lead role by institutionalizing major initiatives in compliance with the SECDEF's directive. The foremost USAF initiative is the transformation from threat based planning to a capabilities based planning approach. The focus is on a planning and modernization investment process that delivers warfighting effects and the capabilities to attain those effects.

The USAF delivers combat capability through the employment of its Air and Space Expeditionary Force.<sup>2</sup> The combat capability of the Air and Space Expeditionary Force creates battlespace effects desired by the Combatant Commander. These combat capabilities are the driver behind everything the Air Force now does as part of its institution of transformation and change. The centerpiece of this effort is the development of six new Concepts of Operations (CONOPS) that guide planning, programming, requirements reform and acquisition. The USAF has identified CONOPS to describe how it will go to war and conduct operations in support of Combatant Commanders. The combat capability the USAF is responsible for attaining and maintaining is derived from its six CONOPS. CONOPS are analyzed against defense planning scenarios and real world strategic environment situations. A major segment of the analysis process is the Capabilities Risk Review Assessment (CRRRA). The CRRRA provides an inventory of capabilities, capability shortfalls and capability redundancies. These inventories are derived from analysis of current capabilities and needs outlined by the Combatant Commanders, war plans and/or war gaming against defense planning scenarios.<sup>3</sup>

This paper will discuss the adequacy of the CONOPS to identify and assess USAF capabilities used in capabilities-based planning. Presentation format will be from general to specific, providing broad explanations up front and focusing to detailed analysis of CONOPS at the end. The first step is to provide background information and key definitions to help understand why the USAF initiative for developing CONOPS. Secondly, an examination of one of the six CONOPS applied to a hypothetical theater situation to demonstrate how capabilities are derived. The theater situation used will parallel a typical fourth generation threat we could expect to deal with in today's global strategic environment. Finally, this paper will turn to detailing the overall process of risk mitigation via the CRRRA.

## **TRANSFORMATION**

As stated by the 2001 Quadrennial Defense Review (QDR), "The purpose of transformation is to maintain or improve US military preeminence in the face of potential disproportionate discontinuous changes in the strategic environment." The US military is striving to fulfill its obligation to change set forth by the SECDEF. The charter of change is manifest in the process of transformation. Transformation is viewed quite differently throughout DoD and the service communities. Regardless, transformation involves a different approach to the old way of doing business. The US military must adapt new fundamental approaches to preserve and maintain the current technological and operational advantage it holds against a

changing enemy. Although the US military currently maintains a technological advantage, technology itself does not guarantee success.

The USAF transformation discussion begins with a service definition of transformation:

A process by which the military achieves and maintains asymmetric advantage through changes in operational concepts, organizational structure, and/or technologies that significantly improve warfighting capabilities or ability to meet the demands of a changing security environment.<sup>4</sup>

The definition recognizes two significant points in regards to the transformation process. First, the incorporation of rapidly advancing technologies needs to improve the USAF warfighting capabilities and secondly, changes in the international security environment are forcing adaptation of new approaches to maintain the asymmetric advantage. The USAF embraces these two important points in its transformation process by integrating advanced technology into its capabilities base and analyzing the emerging security environment in terms of current potential new threat capabilities.

The USAF is transforming to capabilities based planning to better meet the demands of a changing strategic security environment. The goal is to proceed from the previous program centric based approach to a more comprehensive and responsive effects based capability focused approach. "The Air Staff is working hard to lay the foundation for the next step in our transformation to a capabilities-focused Expeditionary Air and Space Force. Our goal is to make warfighting effects, and the capabilities we need to achieve them, the drivers for everything we do."<sup>5</sup> The USAF, as a part of its transformation process, is instituting capabilities based planning to identify the capabilities required to meet the needs of the Combatant Commanders in support of joint operations in the future.

#### **CAPABILITIES-BASED APPROACH**

The explanation of capabilities based planning first begins with an understanding of the capabilities based approach. This approach focuses on defeating a broad spectrum of enemy capabilities any time, anywhere in the new strategic environment. Historically, US military force structure has been a program (platform/system) based garrison force built around a relatively static and predictable enemy threat. Today, US forces face a much more elusive and unpredictable threat. The enemy poses a great danger in his ability to strike asymmetrically. The strategic responsibility of the US military is to mitigate this uncertainty and apply combat capability against an enemy's capability anywhere around the globe. Therefore, a shift from the threat based program centric force development to a capabilities based approach is warranted

to allow application of desired capabilities for any given military operation. This change in approach, capabilities versus threat based approach, is a cornerstone for understanding capabilities based planning. It allows the USAF to focus on capabilities as opposed to systems and/or systems platforms. Each USAF system and/or systems platform will be measured by its contribution of capabilities to the joint force. This shift of how programs (systems and/or systems platforms) are reviewed under capabilities based planning is discussed in the CRRA section. This approach will require thinking in new ways of how to employ combinations of systems to achieve synergistic effects with multi-spectrum capabilities.<sup>6</sup>

## **CAPABILITY BASED PLANNING, A STRATEGIC PERSPECTIVE**

The capabilities based planning process is rapidly evolving and each service is helping to define how the final model will function. A general description of how the capabilities based planning process might function comes from a basic understanding of supply and demand (Figure 1). The services components are on the supply side providing program inputs to produce combat systems and forces that make up unique combat capabilities. Capabilities are both lethal and non-lethal. Many system platforms are capable of providing multiple capabilities. This is an important point when it comes to assessing the addition and/or deletion of forces that may be singularly providing a plethora of unique combat capabilities. These combat capabilities are captured in the form of a Master Capabilities List (MCL). The services concern themselves with the sufficiency (how much) and proficiency (how well) of their respective capabilities.

Dominating the demand side is the theater Combatant Commander. The operation plan (OPLAN), operation plan in concept format (CONPLAN) with or without time-phased force and deployment data and functional plan provide the Combatant Commander with requirements for supply side force providers.<sup>7</sup> Currently this demand is mostly expressed in terms of actual force size requirements. There is a degree of requirements described in terms of effects based operations, but currently more the exception than the rule. One of the speculative strategic goals of capabilities based planning is to have the Combatant Commanders speak in terms of minimum capabilities required. The services or force provider can then fill capability requirements vice force requirements at their prerogative. Implementing a capabilities based planning process in its entirety requires the development of new languages in risk management, metrics for capabilities and outfitting with the appropriate balance. Once it is known how well (proficiency) capability must perform and how much (sufficiency) capability must be on-hand, the language of effects must be refined. This refinement is crucial to the success of capabilities based planning because it communicates requirements in quantifiable terms for planning

purposes. Planners could then take full advantage of a joint capability master list and repackage force modules adjusting for high demand, low density units. Capabilities from another unit or service could be used to fulfill the requirement and lessen demand on specific services or units.

This discussion of strategic application of capabilities based planning remains in the future for adaptation by the joint force. The USAF is continuing its steps to fully implement capabilities based planning from a service perspective. Hopefully, the joint force community will benefit from time tested procedures and processes for joint level acceptance in the near future.

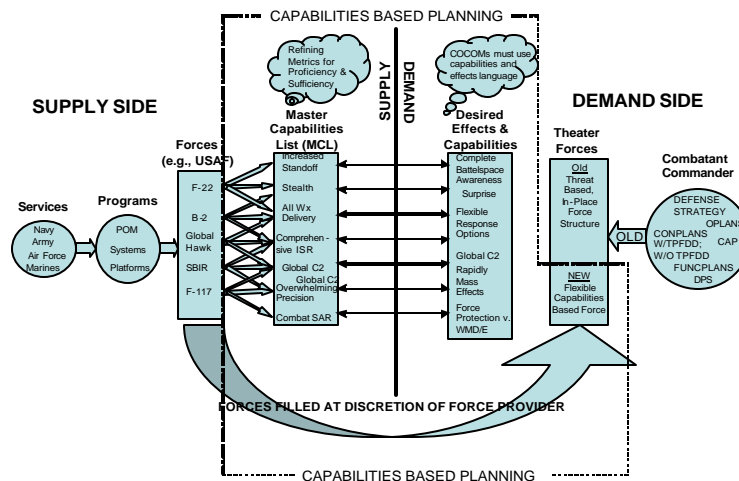


FIGURE 1. CAPABILITIES BASED PLANNING, A STRATEGIC PERSPECTIVE

In the meantime, the USAF will continue to focus and refine its efforts to institutionalize capabilities based planning and deliver effects required by the Combatant Commanders. Development and implementation of the USAF CONOPS are keys to success for capabilities based planning. The CONOPS are the foundation upon which capabilities planning rest.<sup>8</sup>

#### CONCEPTS OF OPERATIONS.

In the year 2000, the USAF began developing six CONOPS to support its contribution to the joint defense strategy. Six new CONOPS divisions on the USAF Air Staff in the Operations Requirements Directorate were created to connect capabilities-based planning around these CONOPS. All USAF operations, programming and budget decisions in turn are designed to support the capabilities defined by the CONOPS.<sup>9</sup> The CONOPS are: Global Strike, Global

Persistent Attack, Homeland Security, Nuclear Response, Global Mobility and Space & C4ISR. The CONOPS, with the addition of Agile Combat Support which transcends all the CONOPS address all the current and future capabilities areas of the USAF. The purpose of the CONOPS is to provide a process for determining the future requirements for the USAF. The CONOPS is the backbone for planning, programming, budgeting, requirements and acquisition processes.<sup>10</sup>

The CONOPS will serve as the USAF centerpiece guide for planning, programming, requirements reform and acquisition. The USAF reorganization centers on CONOPS because while Congress focuses on money and the Office for Secretary of Defense (OSD) on programs, the USAF's expertise is contained within the CONOPS. The CONOPS defines how we plan on using the programmed systems that Congress budgets. The CONOPS flow directly from the QDR strategy, Joint Operations Concepts (JOCs) and supporting Joint Functional Capabilities. The CONOPS parallel the JOCs while the USAF's support capabilities parallel the Joint Functional Capabilities.

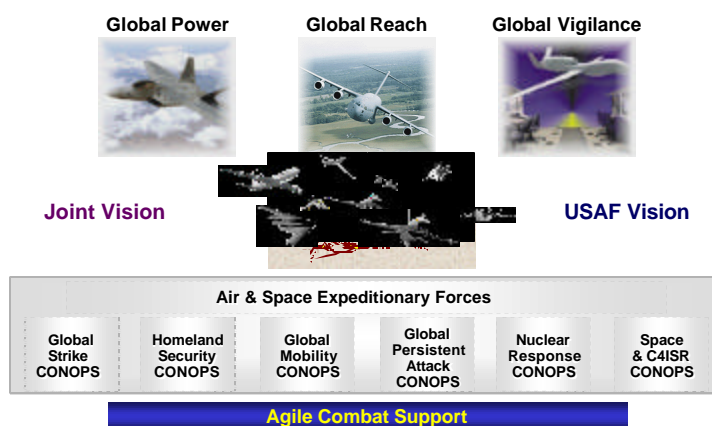


FIGURE 2. CAPABILITIES BASED CONCEPTS OF OPERATION<sup>11</sup>

The CONOPS describe the capabilities and effects the USAF brings to the fight. The USAF binned its capabilities under the CONOPS (Figure 2). Each "bin" of capabilities in a particular CONOPS represents combinations of individual systems and programs. The CONOPS cover all current and future USAF capability areas.<sup>12</sup>

#### CONOPS CHAMPIONS

Each CONOPS has an assigned O-6 advocate called a Champion. The Champion and his/her staff are responsible for the capabilities the USAF has, or needs to develop. These

teams of operational and system experts, evaluate how the USAF is meeting challenges in realizing the USAF vision. The team focus is to look from today and anticipate the challenges the USAF and joint community will face in carrying out the national security strategy. The CONOPS are written by the component commanders (Air Combat Command, Air Mobility Command and Air Force Space Command) and approved by the Chief of Staff of the Air Force.<sup>13</sup>

The following paragraphs present each of the six CONOPS with a brief explanation. Several CONOPS provide key capabilities that support and/or enable all or some capabilities in the other CONOPS.

#### INDIVIDUAL CONOPS

The first CONOPS to discuss is Global Strike. It represents the first and most mature CONOPS developed by the USAF. Not all operational environments will be permissive and there will be attempts to prevent forces from establishing bases and building up capability at our own time, pace and place of choosing. The Global Strike CONOPS (GS) identifies necessary capabilities for the anti-access environment. It employs joint power projection capabilities to engage anti-access and high value targets. These anti-access capabilities are a direct threat to US forces and must be defeated prior to sending in less capable forces. As a result, GS gains access to denied battlespace and maintains battlespace access for all required joint/coalition follow-on operations.

Next is the Global Persistent Attack CONOPS (GPA). GPA assumes that permissible access conditions exist, attained by GS operations if warranted, and there is a need for persistent and sustained combat operations. GPA may require some of the same capabilities used for GS operations to engage emerging enemy anti-access threats to sustain the battlespace for GPA operations. Achieving and maintaining air, space, information and decision dominance is an ongoing challenge that continues into GPA operations. The Space and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance CONOPS (Space & C4ISR) provides the global vigilance necessary to allow commanders to achieve decision dominance over an adversary. In addition, global awareness must be able to provide detailed 24/7 coverage in all conditions over a specific area to support operations. Commanders operating in an Area of Responsibility (AOR) must achieve local decision dominance and the ability to respond to emerging situations in fractions of an hour. Finally, the USAF wants to move to an environment in which system platforms communicate



directly with each other to exchange data thereby allowing people to focus on analyzing information and making decisions.

Another key enabling CONOPS is Global Mobility (GM). Getting the warfighter and materials to the fight on time, on target is a critical enabler. GM systems, combined with the command and control capabilities from the Space&C4ISR CONOPS, provide mobility Command and Control, air refueling operations, air mobility operations, aero medical evacuation, air insertion of forces into hostile territory, space lift, and the initial set up of bases in forward locations.

The logistical support necessary for GM and GPA operations is significantly different than for the GS CONOPS. This “agile” combat support is the foundation for all combat operations and transcends operations from strikes and raids to major conflict. Planners must select the appropriate forces for the adversary's capabilities and task organizes an Air and Space Expeditionary Force (ASEF) for the combatant commander to employ as part of the Joint Task Force.

The Nuclear Response CONOPS (NR) address the fact that the USAF is still charged with ensuring the safety of the US as a nation. There are those in the world who have access to and the capability to employ weapons of mass destruction. To deter and defend the US against those threats, a reliable nuclear force remains key “top cover” for the nation.

Finally, as seen recently by the world trade center terrorist attacks, not all threats to the US are from weapons of mass destruction. In conjunction with the new Department of Homeland Security, the USAF must leverage its capabilities with joint and interagency efforts to prevent, protect and respond to threats against our homeland. This pertains to threats against our homeland whether within or beyond US territories.

The USAF has identified key systems for each CONOPS in two areas. The first is a “core” area that reflects a need to maintain certain baseline capabilities into the future. The second area is “transformational” systems that will enable more dramatic changes in how operations are conducted in the future. For example, the “smart tanker” initiative, placing communication relay equipment on aerial refueling platforms already airborne for other mission tasks, will allow greater distribution of information within an AOR without having to invest in more dedicated communications networks. This increased bandwidth will allow forces at all levels to share information, accelerating the pace and accuracy of operations.<sup>14</sup>

## CONOPS IN ACTION

The overarching goal of the six CONOPS is to describe the effects and capabilities the USAF brings to the joint war fight. Each CONOPS incorporates results from a battery of assessments and analysis, later discussed, to assist in the accuracy of describing these effects and capabilities. The USAF must constantly review strategic guidance, OPLANS, CONPLANS and associated theater planning to ascertain the needs and effects of the Joint Force Commander (JFC).<sup>15</sup> Each CONOPS is a link between capabilities and effects. To illustrate this linkage Global Strike CONOPS is exercised against an unclassified pensive scenario. The scenario describes country X possessing a robust Integrated Air Defense System (IADS). Real-world CONOPS analysis uses Defense Planning Scenarios (DPS) from DoD's classified library.

Global Strike CONOPS (GS) is used against anti-access threats to ensure access for follow on persistent forces. It has three effects: Enter, Engage and Enable. Enter is the effect of gaining access to the battlespace. Engage is the terminology that describes the effect of neutralizing the anti-access systems. This effect also includes exploitation, disruption and/or destruction of key High Value Targets (HVTs). Enable equals the effect of providing access to follow on persistent joint operations. GS centers around technological advantage through stealth, standoff and precision weapons systems directed by a horizontally integrated global C2 system. These advanced capable systems penetrate, degrade and defeat enemy IADS and HVTs. HVTs consist of Chemical, Biological, Radiological, Nuclear and High Explosive (CBRNE) threat targets. US conventional systems are vulnerable to latest era defense systems and must be employed in large, mixed force packages to ensure success. This exposes the conventional force to a high level of risk in the process. GS uses the modern fleet of B-2s, F-22 and Navy TLAM capability to provide the most advanced systems to gain access and minimize risk.

Country X also possesses Weapons of Mass Destruction (WMD) capability and a decentralized C2 network which includes space based systems. In addition, latest generation Surface-to-Air Missiles (SAMs), fighter aircraft, WMD long range accurate delivery, anti-shipping mines and super quiet diesel submarines comprise the protection of country X. These systems protect and may employ a variety of CBRNE threats. Launch and storage facilities are scattered throughout the country requiring deep strike operations to engage the target set. In addition, the country is located at an extreme range from US forces.

This discussion focuses on USAF capabilities only. Depending on size, location and scope of operations, other service forces would jointly fill capability requirements. Location of country X may dictate which service provides the capabilities needed. Some scenarios may

take place in a remote littoral region where Navy or Marine assets would be the only logical choice to provide capabilities needed to achieve the desired effects.

GS will take down, degrade and/or destroy the IADS and HVTs to allow follow on operations. Establishing air dominance will allow friendly forces to conduct joint operations at the tempo, time and location of their choice. GS allows conventional forces protected battlespace to conduct movement in and around the joint operations area. GPA CONOPS is the follow-on to GS in maintaining and sustaining theater operations.

In this scenario the JFC determines what effects he will need to achieve his tactical, operational and strategic objectives. The JFC carefully analyzes his Course of Action (COA) to produce the right mix of effects that will ensure success. The following list represents what effects the JFC has decided he needs to combat the threat in this scenario:

- Complete battlespace awareness
- Ability to C2 global forces
- Surprise
- Freedom of maneuver 24/7
- Robust Information dominance
- Ability to rapidly mass effects when and where needed
- Force Protection against enemy WMD precision
- Flexible response options

To answer the JFC effects requirement, GS would employ core capabilities to satisfy the need. In the future, a joint “bin” of capabilities would be developed from which to pull and answer these requirements. Cross walking the JFC needs and the GS capabilities show the relationship for JFC needs and the ability for USAF forces to fulfill with capabilities. The GS capabilities are:

- Persistent multi-spectral, fused sensors
- Global C2
- Stealth
- Horizontally integrated systems of systems
- Range, payload, speed, maneuverability
- Multi-mission interoperable
- Robust all-weather delivery

- Increased standoff
- Overwhelming precision
- Support to widely dispersed maneuver forces

The USAF heavily invests in each of these GS capabilities. And through the careful development of the associated CONOPS, capabilities are linked with the effects desired.

Figure 3 illustrates the link between GS capabilities in the left hand column and the overarching GS effects introduced earlier in the right hand column. Future joint CONOPS publications would include GS specific capabilities and illustrate the relationship between joint referenced capabilities and those required by the JFC.

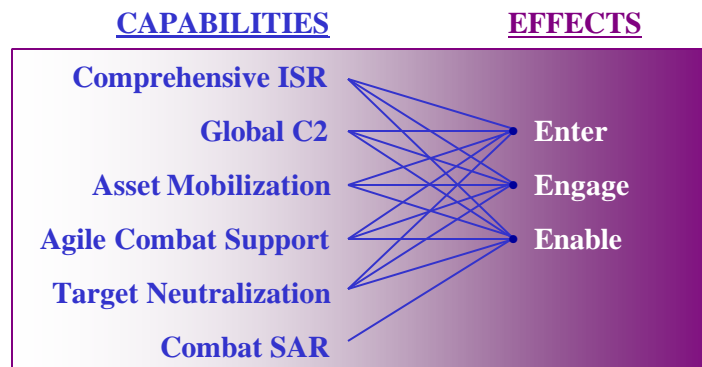


FIGURE 3. RELATIONSHIP BETWEEN GS CAPABILITIES AND EFFECTS<sup>16</sup>

Under this proposed CONOPS comprehensive ISR provides the Predictive Battlespace Analysis (PBA), focused forensic analysis, and target-quality data with updates directly to the cockpit just before GS assets enter the threat areas. Global C2 provides the connectivity to control tempo, asset effects and fleeting target and mobile systems or HVTs. Asset mobilization postures our forces at the operational level, providing the reach and endurance necessary for the required density of operations as well as agile sustainment and support. Mobilization also includes forward operating base opening in both opposed and unopposed environments. Agile combat support pulls all of the “non-operations” pieces of the CONOPS together in one integrated, expeditionary package, ready to exploit rapid forward deployment and base-opening opportunities. Target neutralization encompasses the capabilities this section expands upon in the following paragraphs. Combat search and rescue poses a final challenge due to the anti-access and forward power projection global strike envisions without the benefit of more conventional, legacy CSAR capabilities.

Target neutralization is an aggregate, top level capability and is comprised of numerous supporting capabilities. Each supporting capability is broken down further into more detailed and refined sub-capabilities. The sub-capabilities provide the refined description of specific capabilities the USAF pursues. The following is an expanded look at sub-capabilities applied to neutralizing the anti-access threat and the HVTs:

- Find, Fix, Track, Target, Engage and Assess (F2T2EA)
  - Update PBA for target quality data
  - Cuing to operators before entering battlespace
  - Rapid target ID/ROE assessment for critical HVTs
  - All weather, 24/7 F2T2 critical mobile targets
  - Retarget strike assets in flight
- Strike
  - Air-to-air first kill opportunity
  - Precision standoff attack
  - Neutralize anti-access air, surface and maritime systems
  - Locate/target active air defense systems (SEAD/DEAD)
  - Rapid lethal response
  - Precision striker sensor to accomplish solo F2T2/ID

This expanded list of capabilities is the result of CONOPS development, capabilities review and risk assessment applied to war gaming scenarios. The detailed result is an investment track for future programs that support these capabilities. Investment is expressed in capabilities, not platforms and/or programs.<sup>17</sup>

#### **CONOPS RISK**

CONOPS Champions play a key role in mitigating risk throughout CONOPS development. They are charged with oversight of the entire development process and for communicating issues to senior leadership. CONOPS assessment and analysis is conducted by subject matter experts under the critical jurisdiction of the Champion. In the end, senior leadership is made aware of those capabilities necessary for the USAF to present the full range of ASEF power to the Combatant Commander.

CONOPS Champions will integrate priorities among capabilities for review by the USAF corporate structure (AFCS). They will also participate in the Joint Requirements Oversight Council via USAF channels to ensure all CONOPS capabilities are addressed at the Functional

Capability Boards to help ensure all programs are jointly accepted.<sup>18</sup> The primary objectives of the Champions are to: 1) Review and evaluate the CONOPS and see how the USAF forces fit into a joint environment to carry out a particular mission. 2) Lead the transition from threat-based planning to a capabilities-based approach. 3) Evaluate how the USAF budget supports the capabilities necessary to execute the CONOPS. This identifies shortfalls or gaps to be addressed through changes in doctrine and tactics, and/or new system development. In addition, the Champions will identify areas where the USAF can accept risk and re-direct investment to areas where the risk mitigation is required. Supported by CONOPS Champions, the six CONOPS will help guide the USAF's investment strategy for the future.<sup>19</sup> A closer look at the assessment and analysis process will provide helpful insight in determining the confidence level of CONOPS to derive capabilities needed.

## ANALYSIS PROCESS

In order for the USAF to keep in front of warfighter needs, it must constantly review strategic guidance and planning documentation. The USAF Major Command (MAJCOM) staffs are primarily responsible for the review process. The review process includes several activities: Functional Area Assessments, Functional Needs Analysis, Capability Objective determination, CRRAs and Functional Solution Analysis. Based on the findings, USAF senior leadership directs planning and programming activities. Leadership guidance is captured in several USAF documents including the Annual Planning and Programming Guidance (APPG), the Air Force Strategic Planning Directive and the Air Force Transformation Flight Plan.<sup>20</sup> Developing a dependable method of assessment and analysis is vital to the success of capabilities based planning. Evaluating CONOPS for relevancy and accuracy is a recurring activity that demands constant improvement. The following is an outline of the current method of assessment and analysis.

The Functional Area Assessment (FAA) is the first step in designing an analytical roadmap and is the foundation for all the activities to follow (Figure 4). Beginning with an analytical review of strategic guidance publications and directives, the FAA identifies those tasks, conditions and standards that are used in the follow on process of needs analysis. Current sources for deriving the effects needed by the USAF are the National Security Strategy, National Military Strategy, Joint Operating Concepts, Joint Functional Concepts, USAF CONOPS, previous CRRAs, Integrated Architectures, the Universal Joint Task List and the Master Capability Library. The result of the FAA is a comprehensive list of capabilities and tasks that need reviewed for further analysis.

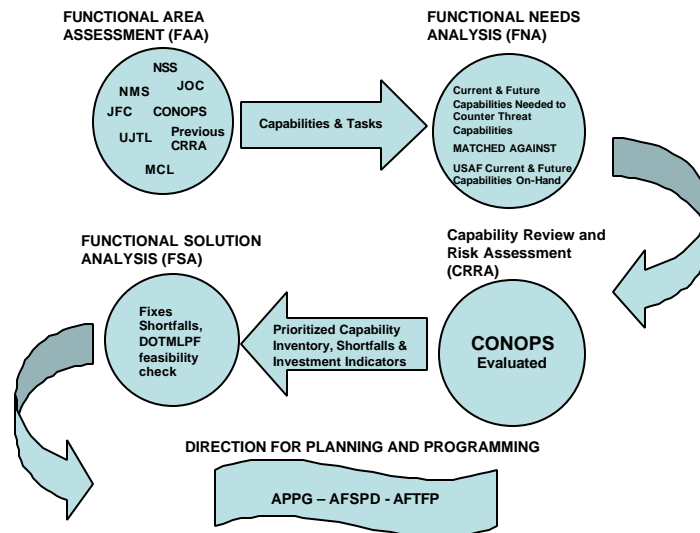


FIGURE 4. ANALYSIS PROCESS

The next step in the process is the Functional Needs Analysis (FNA). The MAJCOMS match USAF current and future capabilities against what is needed to counter current and future threat capabilities in the strategic environment. The FNA determines the ability to fill the warfighter needs as outlined by the FAA and CONOPS. Key to the FNA is supporting capability recommendations with valid measures of merit (performance and effectiveness). Identifying, defining and measuring capability needs at this point is critical. An oversight in a capability need, capability objective, would prevent further consideration for the road mapping an approval plan to deliver capabilities to the warfighter.

The CRRA is the next step in the process and the most important step for explaining the capabilities based planning concept. The CRRA is the analytical tool that closely focuses on and evaluates the CONOPS. It is the cornerstone assessment that provides several new benefits over past programmatic centric assessments. The output of the CRRA produces an inventory of current capabilities, shortfalls and most importantly direction for future acquisition decision making. Our current and future systems are viewed for how they contribute to warfighter needs and effects. The CRRA process is vital to the development and accuracy of the CONOPS derived capabilities and therefore will be analyzed in greater detail.

The Functional Solution Analysis (FSA) integrates capability needs identified in the FNA process. The FSA mitigates these needs and identifies Doctrine, Organization, Training, Material, Leadership & Education, Personnel and Facilities (DOTMLPF) fixes to shortfalls.

The FAA, FNA, CRRA and FSA process is intended to provide valuable information for senior USAF leadership to direct planning and programming guidance. The APPG directive identifies shortfalls and redundancies and enables MAJCOMs to program future systems with capabilities based Program Objective Memorandum (POM). The APPG assists in building POMs that will deliver capability shortfalls to the warfighter and focuses the budgeting cycle efforts. Another product of the analysis and assessment process is generation of an integrated capability roadmap. MAJCOMs produce an integrated roadmap for all the capabilities contained in the MCL. The roadmap outlines all the activities involved with attaining or maintaining capabilities. The roadmap is used to synchronize actions at all levels of the USAF to keep capabilities on schedule.

Capabilities prioritization and shortfalls are highlighted to senior leadership through the AFCS. POMs are validated and investment strategies for the future are set. Through the work of the CONOPS Champion capability prioritization and shortfalls are placed into the budget process. The Champions also establish relationship with the Joint Capabilities Integration and Development System (JCIDS) to ensure USAF representation of capability issues. The Functional Capabilities Board is the sub component that reviews and forwards recommendations to the JCIDS.<sup>21</sup>

#### CAPABILITIES REVIEW AND RISK ASSESSMENT PROCESS

Again, the CRRA is the most important step in determining capability prioritization, gaps, shortfalls and COA solutions. The assessment analyzes joint warfighting capabilities and alerts USAF Senior leadership of problems and deficiencies. The CRRA process is not a panacea or catch all mechanism, but plays a significant role in the analysis process. Senior USAF Leadership depends on the CRRA process to yield valid information products that are used for current and future capability investment decisions. The CRRA process must be deliberate, detailed and decisive to prevent any oversight of capability deficiencies.



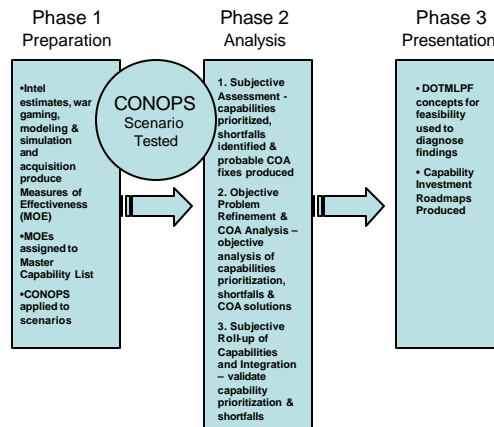


FIGURE 5. CRRA PROCESS

The CRRA process is centered around CONOPS and has three phases: Preparation, Analysis and Presentation (Figure 5).

Phase 1, Preparation, prepares a performance framework for the Risk Assessment Teams (RATs) to work from. Capability metrics are developed from a variety of analysis instruments. Current intelligence estimates, modeling and simulation, wargaming, acquisition are all sources used to produce measures of effectiveness. Measures of effectiveness are assigned to all levels of capabilities within the MCL providing a mechanism to score how well the USAF performs its required capabilities. Next, scenarios are selected to assess the USAF's ability to deliver effects requested by the Combatant Commander. The sample scenario used in the previous section is a simplistic illustration of very complex and dynamic real world scenarios. The scenarios are chosen from the DPS and further refined by guidance outlined in the National Security Strategy and National Military Strategy documents. Scenarios are also modified with more demanding requirements known as stressors to ensure the ability to provide capabilities over a broad spectrum. This involves a departure from the old system whereas scenarios were threat based, in limited number and with limited focus. Today's scenario development emanates from a wide range of scenarios that focus on multiple problem areas simultaneously.

Phase 2, Analysis, consists of 3 subparts: Subjective Assessment, Objective Problem Refinement and Course of Action (COA) Analysis, Subjective Roll-up of Capabilities and

Integration. The CONOPS and MCL feed this process the inventory of capabilities to examine. The RATs assess capabilities for proficiency, sufficiency and risk. Areas are identified for further study and analysis. The grading criterion is subjective and uses subjective scoring to weight and detect areas of potentially unacceptable risk. Capability prioritization and gaps are generated in this phase. The next sub phase, Objective Problem Refinement and COA Analysis takes the initial gap list from subjective assessment, along with probable COAs that resolve the gap deficiency and bounce it against objective analysis. Modeling and simulation techniques are used to find acceptable COA optimal solutions using advanced analysis tools. The last sub phase, Subjective Roll-up of Capabilities and Integration, requires MAJCOM appointed Integration Teams and the RAT to validate capability prioritization and develop gap and shortfall COA solutions. Prioritizations and risks are then “racked and stacked” and solutions sets are tested. The process applies constraints and restraints to check solution feasibility. This is the first look at where the USAF can identify tradespace and force structure investment options.

Phase 3, Presentation, allows USAF senior leadership to review the shortfall list. DOTMLPF concepts for feasibility are used to diagnose the CRRA findings. The outcomes are normally directives to the MAJCOMs via APPG and generation of capability roadmaps. The roadmaps identify the investment and reinvestment priorities integrated into the POM process.<sup>22</sup>

The CRRA evaluation of the CONOPS delivers a combat capability inventory that is prioritized, scrubbed for deficiencies (shortfalls) and decisive enough for future USAF investment strategy. The CRRA methodology provides a systematic process for determining what is needed, missing and redundant. CONOPS Champions, RATs and Integration Teams continue to improve the CRRA methods to ensure fidelity and accuracy.

The presentation of the CRRA process marks the end of the overall analysis process. The analysis process will continue to develop and focus on capturing improvements as the USAF continues the journey towards perfecting CONOPS and its ability to adequately identify combat capabilities.

## **CONCLUSION**

The six CONOPS are essential to the assist the Air Force leap into the 21<sup>st</sup> Century transformation. The DoD and sister services must seek innovative ways to provide the combatant commanders with the warfighting combat capabilities necessary to create battlespace effects and win America’s conflicts. Smaller force structure and dwindling defense dollars create the need for a fully integrated joint force that supports the defense strategy. The Air Force is motivated, committed and invested in its six CONOPS. The result is look ahead

efficiencies to guide planning, programming and acquisition. The reorganization to capabilities based planning allows every budget dollar to be applied to increasing capabilities for programmed systems. The USAF carefully crafted an institutional approach that methodically connects the newly developed CONOPS to capabilities based planning. Meticulous planning and analysis support the development and application of the USAF CONOPS. Risk assessment, scenario applications and careful analysis builds confidence in the CONOPS ability to identify capability requirements. The process assures that USAF investment in current and future systems is on track.

But there is still more work to be done. Capability performance metrics and standards need fine tuning to ensure sufficiency and proficiency. Problems arise from modifying one system that produces multiple capabilities. For instance, deleting a single system may create significant decreases in overall capability. The combatant commanders must develop a system that speaks capabilities as its language for requirements and leaves force structure up to the force provider. And finally, an ability to accurately assess adversary and potential adversary nations combat capabilities in the same perspective we view our ability to deliver battlespace effects.

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## ENDNOTES

<sup>1</sup> Joint Chiefs of Staff, *Joint Operations Concepts*, (Washington, D.C.: U.S. Joint Chiefs of Staff, 26 September 2003), 2

<sup>2</sup> Department of the Air Force, *Organization and Employment of Aerospace Power*, Air Force Doctrine Document 2 (Washington, D.C.: U.S. Department of the Air Force, 17 February 2000), 38

<sup>3</sup> Department of the Air Force, *The USAF Transformation Flight Plan*, HQ USAF/XPXT Transformation Division Document (Washington, D.C.: U.S. Department of the Air Force, July 2003), 13.

<sup>4</sup> Ibid., iv

<sup>5</sup> General John P. Jumper, "Capabilities and Risk Assessment," The CSAF Sight Picture May 2001 [journal on-line]; available from <<http://afconops.hq.af.mil/support/csafcra.pot>>; Internet; accessed 10 November 2001

<sup>6</sup> Colonel Kevin Martin of HQ USAF/XORTF, interviewed by author, 13 September 2003, Washington, D.C..

<sup>7</sup> Joint Chiefs of Staff, *Joint Doctrine of Campaign Planning*, Joint Pub 5-00.1 (Washington, D.C.: U.S. Joint Chiefs of Staff, 25 January 2002), III-3

<sup>8</sup> Colonel David Gerber of HQ USAF/XOR-GS, interviewed by author, 15 October 2003, Washington, D.C..

<sup>9</sup> Department of the Air Force, *Air Force Capabilities Investment Strategy*, HQ USAF/AFCIS Draft Document (Washington, D.C.: U.S. Department of the Air Force, 26 Feb 2002, 1

<sup>10</sup> HQ USAF/XPXT Transformation Document, 3

<sup>11</sup> Colonel Michael Snodgrass, "Air Force Effects-Based Capabilities-Focused Planning," briefing slides, HQ USAF/DXOR: Washington D.C., 15 October 2003.

<sup>12</sup> Ibid

<sup>13</sup> Colonel Michael Snodgrass, "CONOPS Champion Process," briefing slides, HQ USAF/DXOR: Washington D.C., 17 December 2003.

<sup>14</sup> Martin, interview

<sup>15</sup> Department of the Air Force, *Effects based, Capabilities Focused Planning*, Air Force Instruction 10-604 Draft (Washington, D.C.: U.S. Department of the Air Force, no date)

<sup>16</sup> Colonel David Gerber, "Global Strike CONOPS Unified Course '04" briefing slides, HQ USAF/XOR-GS: Washington D.C., 15 October 2003

<sup>17</sup> Ibid

<sup>18</sup> Colonel Budgeon, "Pentagon Functional Capabilities Board" briefing slides, HQ USAF/XORD: Washington D.C., 8 Aug 2003

<sup>19</sup> Martin, interview

<sup>20</sup> Ibid, 10-604 DRAFT, 6

<sup>21</sup> Ibid, 10-604 DRAFT, 7

<sup>22</sup> Ibid, 10-604 DRAFT, 19-22

## GLOSSARY

### ABBREVIATIONS AND ACRONYMS

ACC	Air Combat Command
ACS	Agile Combat Support
AFCIS	Air Force Capabilities Investment Strategy
AFCS	Air Force Corporate Structure
AFSPC	Air Force Space Command
AFTFP	Air Force Transformation Flight Plan
AMC	Air Mobility Command
AOR	Area of Responsibility
CJCS	Chairman of the Joint Chiefs of Staff
COA	Course of Action
CONOPS	Concept of Operations
CPR	Capability Planning Roadmap
CRRA	Capabilities Review and Risk Assessment
CSAF	Chief of Staff of the United States Air Force
DoD	Department of Defense
DOTMLPF	Doctrine, Organization, Training, Materiel, Leadership & Education, Personnel, & Facilities
DPS	Defense Planning Scenario
F2T2EA	Find, Fix, Track, Target, Engage, Assess
FAA	Functional Area Assessment
FCB	Functional Capabilities Board
FNA	Functional Needs Analysis
FSA	Functional Solution Analysis
GM	Global Mobility
GPA	Global Persistent Attack
GS	Global Strike

HLS	Homeland Security
JROC	Joint Requirements Oversight Council
MAJCOM	Major Command
MCL	Master Capability Library
NR	Nuclear Response
NSS	National Security Strategy
OSD	Office of the Secretary of Defense
POM	Program Objective Memorandum
QDR	Quadrennial Defense Review
RAT	Risk Assessment Team
SECAF	Secretary of the Air Force
SECDEF	Secretary of Defense
SME	Subject Matter Expert

#### TERMS

**Capability**--The ability to execute a specified course of action. It is defined by an operational user and expressed in broad operational terms in the format of an initial capabilities document or a DOTMLPF change recommendation. In the case of material proposals, the definition will progressively evolve to DOTMLPF performance attributes identified in the CDD and the CPD.

**Concept of Operations (CONOPS)**--A high level concept whose purpose is to describe a problem that combatant commanders may face, objectives to solve problem, desired effects, capabilities needed to achieve effects, and sequenced actions that describe the employment concept.

**Course of Action (COA)**--The COA is a planning and decision process that culminates in a MAJCOM decision. The COA includes a series of alternative program choices developed by the MDA or his designate, presented to a MAJCOM commander and that once a specific COA is selected, becomes a formal agreement between the MDA and the operator (MAJCOM Commander) that clearly articulates the performance, schedule, and cost expectations of the program. The COA provides the basis for the Technology Development Strategy during the Technology Development Phase. The COA becomes the basis for the SAMP.

**DoD Components**--The DOD components consist of the Office of the Secretary of Defense, the Military Departments, the Chairman of the Joint Chiefs of Staff, the combatant commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, DOD Field Activities, and all other organizational entities within the Department of Defense.

**Effects-Based Operations**--Military actions and operations designed to produce distinctive and desired effects through the application of appropriate movement, supply, attack, defense, and maneuvers. Effects-based operations focuses on functional, systemic, and psychological effects

well beyond the immediate physical result of a tactical or operational event. Furthermore, it is equally concerned with military actions and operations that trigger additional effects beyond those desired.

**Functional Capabilities Board (FCB)**--A permanently established body that is responsible for the organization, analysis, and prioritization of joint warfighting capabilities within an assigned functional area.

**Joint Capabilities Board (JCB)**--The JCB functions to assist the JROC in carrying out its duties and responsibilities. The JCB reviews and, if appropriate, endorses all JCIDS and DOTMLPF proposals prior to their submission to the JROC. The JCB is chaired by the Joint Staff, J-8, Director of Force Structure, Resources, and Assessment. It is comprised of Flag Officer/General Officer representatives of the Services.

**Joint Functional Concept (JFC)**--An articulation of how a future Joint Force Commander will integrate a set of related military tasks to attain capabilities required across the range of military operations. Although broadly described within the Joint Operations Concepts, they derive specific context from the Joint Operating Concepts and promote common attributes in sufficient detail to conduct experimentation and measure effectiveness.

**Joint Operating Concept (JOC)**--An articulation of how a future Joint Force Commander will plan, prepare, deploy, employ, and sustain a joint force against potential adversaries' capabilities or crisis situations specified within the range of military operations. Joint Operating Concepts guide the development and integration of Joint Function Concepts (JFCs) to provide joint capabilities. They articulate the measurable detail needed to conduct experimentation and allow decision makers to compare alternatives.

**Joint Operations Concepts (JOpsC)**--A concept that describes how the Joint Force intends to operate 15 to 20 years from now. It provides the operational context for the transformation of the Armed Forces of the United States by linking strategic guidance with the integrated application of Joint Force capabilities.

**Sufficiency**--Estimates used during capability analysis that answer the question "Do we have enough (troops, aircraft, supplies, etc.?" Sufficiency ratings will be used to determine overall health and risk of a capability.

**Tradespace**--Selection among alternatives with the intent of obtaining the optimal, achievable system configuration. Often a decision is made to opt for less of one parameter in order to achieve a more favorable overall system result.





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